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Analysis of soil samples from Skriðuklaustur I

Skýrslur Skriðuklaustursrannsókna XXXIV

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Project´s aim and methods

Soil samples were taken between the years 2003 and 2010 at the monastic site of Skriðuklaustur. The purpose of this was to process and analyse them to extract any plant macrofossils and other ecofacts from them. This process then provides evidence of plant use and economy, as well as other processes that occurred in different areas of the site throughout the period of occupation of the monastery, and in areas where further construction was done through the phases of its occupation.

The samples from the site at Skriðuklaustur were processed following English Heritage guidelines (Jones 2011). Archaeobotanical procedures followed Greig (1989), Jones (2011) and Pearsall (2000). Nomenclature followed Stace (1997) unless specified, with additional background identification, ecology and plant use making reference to Anderberg (1994), Beijerninck (1947), Berggren (1981), Cappers *et al* (2006), Ferguson-Lees & Campbell (1979), Fitter *et al* (1984), Grieve (1989), Hubbard (1992), Hyde & Wade (1978), IfA (2001), Jones *et al* (2004), Martin & Blarkley (1972), Potterton (1983), Schoch *et al* (1988), Stace (1997) and Woodward (1982). The recording of the information in the data table used a presence-absence scale where 0 was absent, 1 was present, 2 was frequent and 3 was abundant. This is reflected in the written analysis where only the occurrence of cereal grain would be recorded as an actual count of grains encountered.

Sample 2005-36-0325

The sample from 2005-36-0325 was from a floor layer in the refectory (see appendix II). The main components frequent in the light fraction of the sample were charcoal, fish bone and small light volcanic stones less than 1mm in size. The charcoal was in small fragments, some occurring from burning twigs, and some from larger pieces of wood. The fish bone had probably been cooked judging by the colour of it and may have been discarded during eating or cooking as some of the fragments were 4cm in length.

Other ecofacts present were burnt bone ranging in size from 1mm fragments to pieces of 1x1.5cm. These fragments showed signs of high calcification, therefore indicating

high temperature treatment in or near the fire source that calcified them. A burnt bone bead was recovered with a 4mm diameter that had a small hole through the middle. This may have been from a set of Rosary beads. Fragments of the exoskeleton of Coloeoptera (beetle species) were present that could be analysed further to species to give an indication of the surrounding habitat.

Uncharred seed species were present only as the small nettle (*Urtica urens* L.) that may have been present at the time of deposition of the matrix as it showed signs of being mineralised. Some uncharred plant fibres were also present. Charred seeds were present as fairy flax (*Linum catharticum* L.), sheep's sorrel (*Rumex acetosella* L.), common chickweed (*Stellaria media* (L.) Villars), tufted vetch (*Vicia cracca* L.), fragments of Campion species (*Silene* L. spp.), a sedge of the *Scirpus* species and a few unidentified charred seed fragments were also present. A tentative identification of a charred seed of the crab or wild apple (*Malus sylvestris* (L.) Miller, fig. 1) was made that needs further corroboration.

Fig. 1. Malus sylvestris (Per Arvid Åsen).

Although this was not recorded as a cooking area the amount of charcoal, burnt bone, cooked fish and charred seeds present indicates that it was removed from an area of a fire or hearth from which this material was drawn out, or became part of the floor surface due to its close proximity to the fire or hearth. The seed of crab apple is

interesting in that, although this tree does not grow in such a northerly latitude, it was thought to have been imported for food use. The evidence of the fuel source used here is predominantly charcoal, although there are indications of the burning of turfs from the charred seeds recovered. The more fragile seeds and plant fragments from turf may not have survived as well as the charcoal though, leaving only a small suite of surviving charred material after the high temperatures encountered indicated by the burnt bone and charcoal.

Sample 2006-36-0908

Sample 2006-36-0908 was recorded as being a burnt layer taken from a storage room next to the kitchen (see appendix II). Charcoal was abundant in the light fraction. Heated or cooked fish bone, charred fish skin, burnt bone, beetle exoskeleton parts and light volcanic stones less than 1mm in size were present. Some of the charcoal fragments were quite large (2x2x2cm) and could probably be identified to species. Others were of small wood from twigs with a diameter of 0.7-1.5mm. Small charred leaves, possibly from moss, measuring between 0.7-2mm in length and a small amount of charred hair moss was present. A small amount of unburnt wood was recovered. A fish tooth, probably cod, was found that showed no evidence of burning.

Charred seeds of the grass species *Deschampsia*, *Festuca* and *Poa* L., as well as the charred sedge species *Eleocharis* were present, while *Carex* and *Scirpus* sedge species were frequent. Other charred seeds present were blinks (*Montia fontana* L.) and tufted vetch (*Vicia cracca* L.). A few unidentified charred seeds were present. Indications from the charred seeds recovered were that the fuel source used in the formation of this burnt layer was, at least in part, from the burning of turfs. Charcoal was also frequent but as stated above would have had a better preservation than the smaller, more delicate seeds from the turf. The charred leaves from mosses also indicate turf burning. Cooked fish bone as well as charred fish skin was present in this sample, more an indicator of a cooking area local to the site of deposition, or at least in close proximity.

Sample 2008-36-1286

This sample 2008-36-1286 was listed as being from the infirmary (see appendix II). Charcoal was abundant in the light fraction, some fragments measuring 2.5x2.5x2.5cm. Other pieces were from branches with a diameter of between 1-3cm. Very small twigs of 1-2mm diameter were also present, possibly from heather (*Calluna vulgaris* (L.) Hull) or the cross leaved heath (*Erica tetralix* L.). Fish bone was present mainly in small fragments but there were two vertebrae measuring 1cm in diameter from quite large fish and also a tooth measuring 4mm in length. The foot bone of a sheep measuring 1x1x1cm was recovered that showed no signs of burning or heating. Burnt bone, larva cases, beetle exoskeleton parts and bark were also present.

Although this was the largest amount of matrix recovered from any sample, and it was charcoal rich, it contained a relatively few number of seeds. Uncharred seeds present were small nettle (*Urtica urens* L.) and common nettle (*Urtica dioica* L.); both types were very fragmentary and not well preserved. Charred seeds were present as species of orache, possibly *Atriplex patula* L., the common orache. Others present were various species of the *Brassica* L. family such as cabbage, kale, swede, turnip and others.

Seeds of wild thyme (*Thymus praecox* ssp. arcticus (E.Durand.) Jalas.) were recovered, a member of the dead nettle family. Charred species of the grass *Poa* L., sedge species *Carex* L. and *Scirpus* L. were present. Seeds of the gentian family were present as the alpine gentian *Gentiana nivalis* L. and autumn gentianella, *Gentianella amarella* (L.) Boerner, as well as a partial seed of *Leontodon autumnalis* L., the autumn hawkbit. Several small berry-like remains were found measuring about 1mm in diameter. They may have been newly forming bilberries or the bog type, possibly from using this woody plant as a fuel source.

The *Brassica* species as cabbage, cauliflower, kale, brussel sprouts, rape, swede and turnip have been grown in Iceland for a considerable time, and were most likely grown during the monastic period (Steinunn Kristjánsdóttir, pers comm.), probably in a cultivated area. These plants are an important source of iron and other vitamins; even the water used in their cooking is a rich source of these nutrients that may have

been given to the sick or infirm. Some species can also be used medicinally for the relief of illnesses such as bronchitis and rheumatism, while mustards can be used to make poultices to reduce or remove skin infections and inflammations (Grieve 1977: 566-70).

Thyme species are often used for flavouring foods as their flavour is strong and pungent. The leaves and essential oil contained in them can be used medicinally, acting as anthelmintic, antiseptic, antispasmodic, carminative, deodorant, diaphoretic, disinfectant, expectorant, sedative and tonic (Bown 1995; Grieve 1977). The plant can be used fresh at any time of the year, or can be harvested as it comes into flower and either be distilled for the oil or dried for later use (Bown 1995).

Few charred seeds of any economic value were recovered from this sample, even though a considerable amount of charcoal was present. There were, however, fish vertebrae, a tooth and the foot bone from a sheep, suggesting the preparation of food in this area. It would be possible to identify the fish to species. Although it may have been the kitchen area, this may not have been the place where the food was prepared, or where the fire was set to cook the food.

No evidence for the use of cereal crops was found during this analysis, and other food type seeds recovered were limited. In this extremely marginal environment though, great care would have been taken to preserve food sources. The method of cooking may also have had a bearing on the plant remains recovered. Foods such as soups and broths, that could have ingredients added to them constantly throughout the day, would provide little opportunity for the preservation of remains in the archaeological record. Many of the foodstuffs added in this form of cooking may have been leaves and roots. This would also explain the preservation of the fish bone recovered. This is a similar subsistence economy to that of the Northern Isles, particularly Shetland, apart from the limited cereal crop growth carried out there. Species of vetch have been used, both historically and to the present day (Woodward & Burge 1982), as green manure to enhance plant growth due to their nitrogenous content. This provides increased crop yield or fodder output for animal consumption.

Identification of some remains were difficult, due to the lack of suitable reference material as well as the unfamiliarity of the author to them; some of the material recovered was fragmentary or distorted in the process of charring, impeding the identification process. This preliminary analysis from Skriðuklaustur has proved useful in that it has suggested the potential of the remaining samples to indicate plant species that were used in and around the area of the excavation.

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Appendix I – list of seeds and ecofacts identified

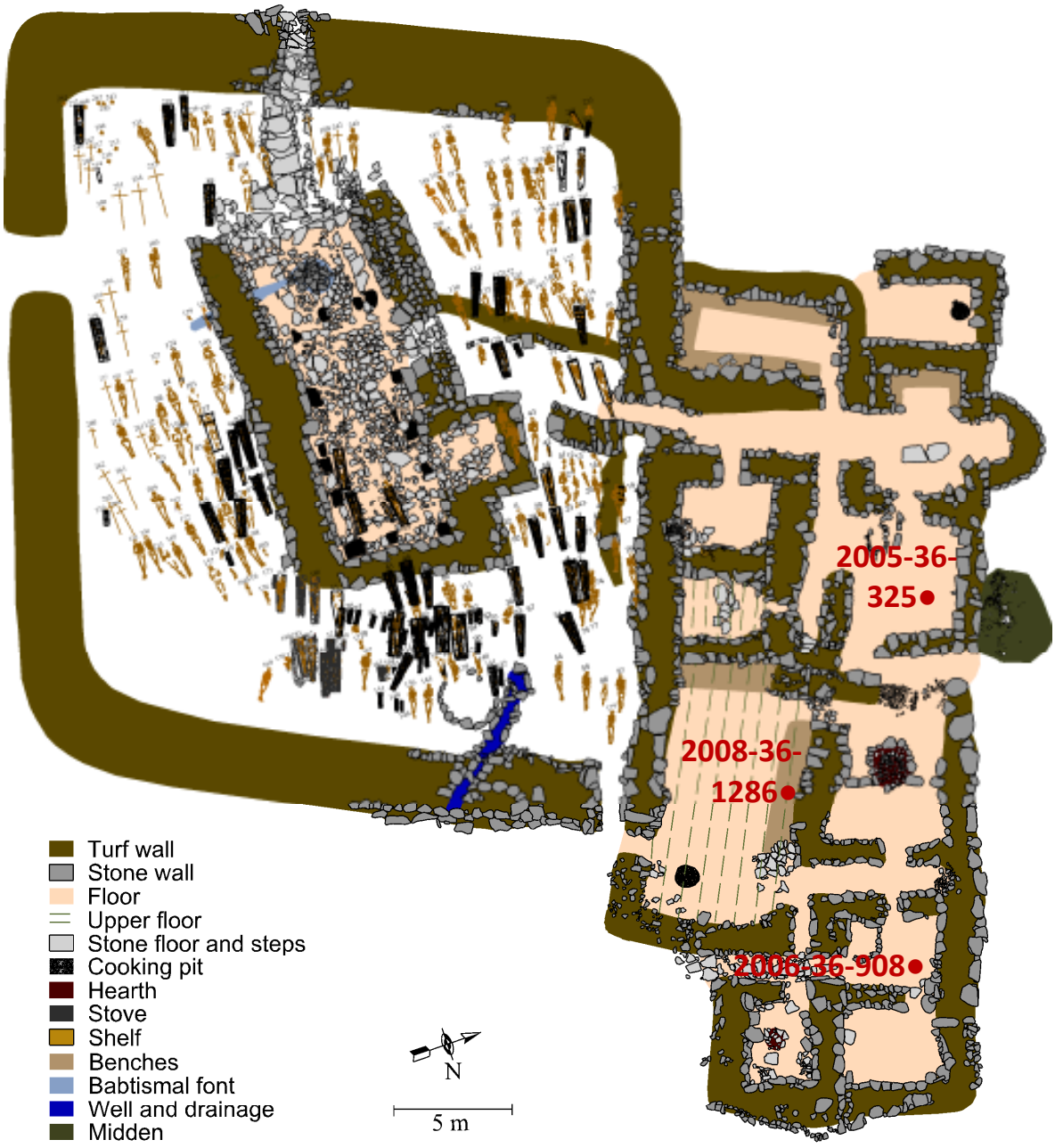
Analysis for flots of samples from Skriðuklaustur

Year code	2005-36	2006-36	2008-36
Context	**325**	**908**	**1286**
Volume processed (litres)	2.5	3.0	3.0
Volume of flot (ml)	100	120	550
Flot contents (relative abundance)			
Animal bone	-	-	1
Bark	-	-	1
Beetle parts	1	1	1
Burnt bone	1	1	1
Charcoal	2	3	3
Charred fish skin	-	1	-
Charred *Calluna*/*Erica* species	-	1	1
Fish bone (heated or cooked)	2	1	1
Light volcanic stones less than 1mm	2	1	1
Charred seed species recovered			
Gramineae (grass species)			
Deschampsia P. Beauv. spp. (Hair-grasses)	-	1	-
Festuca L. spp. (Fescues)	-	1	-
Poa L. spp. (Meadow-grasses)	1	1	1
Cyperaceae (sedge species)			
Carex L. spp. (Sedges)	-	2	1
Eleocharis R. Br. spp. (Spike-rushes)	-	1	-
Scirpus L. spp. (Club-rushes)	1	2	1
Other charred seeds			
Atriplex species	-	-	1
Brassica species	-	-	1
Gentiana nivalis L. (Alpine gentian)	-	-	1
Gentianella amarella (L.) Boerner (Autumn gentianella)	-	-	1
Leontodon autumnalis L. (Autumn hawkbit)	-	-	1
Linum catharticum L. (fairy flax)	1	-	-
Malus sylvestris (L.) Miller (crab apple)#	1	-	-
Montia fontana L. (blinks)	-	1	-
Rumex acetosella L. (sheep's sorrel)	1	-	-
Silene L. spp. (Campions)	1	-	-
Stellaria media (L.) Villars (common chickweed)	1	-	-
Thymus praecox ssp. *arcticus* (E.Durand.) Jalas	-	-	1
Vicia cracca L. (tufted vetch)	1	1	-
Unidentified charred seeds/spores	1	1	1
Uncharred seed species recovered			
Urtica dioica L. (common nettle)	-	-	1
Urtica urens L. (small nettle)	1	-	1
Unidentified uncharred seeds	-	-	-

Tentative identification

Relative abundance scores are based on a scale from 1 (lowest abundance) to 3 (highest abundance) from Hall & Kenward (1990: 297)

Appendix II – a drawing of the site



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